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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,499	01/24/2005	Pierre Floriano	LABN:023US	7143

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EXAMINER	
BEISNER, WILLIAM H	

ART UNIT	PAPER NUMBER
1797	

MAIL DATE	DELIVERY MODE
05/14/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,499	FLORIANO ET AL.	
	Examiner	Art Unit	
	WILLIAM H. BEISNER	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *50-54,83,84,86-91 and 95-99* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *50-54,83,84,86-91 and 95-99* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/21/09, 12/7/09, 12/15/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements filed 8/21/2009; 12/7/2009 and 12/15/2009 have been considered and made of record.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 50-54, 83, 84, 86-91 and 95-99 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claim 50 was amended in the response filed 5/22/2009. When amending the claims, Applicants point to the originally filed claims and pages 44-48 of the instant specification.

With respect to amended independent claim 50 and all dependent claims, the limitation "contacting the lymphocytes collected on the membrane with a visualization agent" is considered new matter. As shown on pages 44-48 of the instant specification, all discussion involving the detection of lymphocytes involves contacting the sample including lymphocytes with a visualization agent prior to collection on the membrane.

Additionally, claims 51, 53, 83, 87-89, 95 and 96 are not considered to have support in the originally filed specification and claims. Amended claim 50 is drawn to a specific embodiment involving the detection of lymphocyctes (CD4) which is discussed on pages 44-48 of the instant specification. The combination of the additional steps recited in claims 51, 53, 83, 87-89, 95 and 96 with the detection of lymphocytes is disclosed in the originally filed disclosure. Specifically, the detailed discussion involving the detection of lymphocytes is devoid of the use of three different wavelengths of light and/or the use of binary masks.

As a result, the instantly claimed invention was not described in the specification in such as way as to reasonably convey to one skill in the art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 50, 54, 83, 84, 86, 90, 91 and 97-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al.(US 6,709,868) in view of Straus (US 2003/0170613).

With respect to claim 50, the reference of Law et al. discloses a method of analyzing a fluid sample that includes passing one milliliter or less of a fluid sample (Example 1) through a membrane-based flow sensor assembly (Figure 1) including a membrane wherein the fluid sample comprises lymphocytes that are at least partially retained by the membrane; contacting the lymphocytes with a visualization agent (Example 1; column 7, lines 39-60); and analyzing the collected lymphocytes on the membrane (Example 1).

Claim 50 differs by reciting that the analyzing step involves imaging of the lymphocyctes on the membrane.

The reference of Straus discloses a method of labeling and concentrating a sample including lymphocytes the analyzes the collected sample using imaging (Example 30)

In view of this teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was to employ imaging analysis in the method of the primary reference for the known and expected result of employing an alternative means recognized in the art to achieve the same result. It is noted that the Example 30 of Straus includes distinguishing and determining the number of CD4 positive lymphocytes in the sample (See paragraphs [0475]-[0476]).

With respect to claim 54, the images are collected using a digital detection device (Figure 3 of Straus).

With respect to claim 83, subtracting background information from the detected image is well within the purview of one having ordinary skill in the art for the known and expected result of reducing the noise within the detection system. Also, cleaning the surface of the membrane would have been obvious for the known and expected result of allowing the device to be used for additional assays.

With respect to claim 84, the images are collected using a detector and programmable controller (paragraph [0258] of Straus).

With respect to claim 86, the visualization agent includes a label configured to emit light at a specific wavelength spectrum (Example 30 of Straus).

With respect to claim 90, the images are collected using a CCD detector (Figure 3 of Straus).

With respect to claim 91, based merely on considerations such as the size of the membrane to be analyzed, it would have been obvious to one of ordinary skill in the art to employ a magnified (microscope) image.

With respect to claim 97, the fluid sample is a blood sample (Example 1 of Law et al.).

With respect to claim 98, the label is a fluorescent label (Example 30 of Straus).

With respect to claim 99, the visualization agent is an anti-CD4 antibody (column 7, lines 39-60 of Law et al. and Example 30 of Straus).

8. Claims 51-53, 87-89, 95 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al.(US 6,709,868) in view of Straus (US 2003/0170613) taken further in view of Miller et al.(US 3,827,804).

The combination of the references of Law et al. and Straus has been discussed above.

Claims 51-53, 87-89, 95 and 96 differ by reciting that red, blue and green components of light are detected using a white light source.

The reference of Miller et al. discloses that it is known in the art to employ red, blue and green light components when detecting lymphocyctes (See Figure 5 and column 1, lines 20-42).

In view of the disclosure of Miller et al., it would have been obvious to one of ordinary skill in the art to employ red, blue and green light components when detecting lymphocytes in the sample for the known and expected result of optically filtering out other components of the fluid sample.

With respect to the specifics of the masks employed to generate the final image, it would have been obvious to one of ordinary skill in the art to determine the optimal image mask configuration based merely on the specifics of the visualization agents employed and/or the potential source of interfering matter contained within the fluid sample while maintaining the detection efficiency of the assay.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 50, 90 and 99 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 6 and 12 of copending Application No. 10/544,864. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1, 3, 6 and 12 of copending application '864 claim substantially the same method as required of claims 50, 90 and 99 of the instant application. The instant claims differ by reciting that the sample is one milliliter or less. However, if not implicit in the claims, it would have been obvious to one of ordinary skill in the art to determine the optimal volume of sample to employ while maintaining the efficiency of the detection method.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claims 50-54, 83, 84, 86-91 and 95-99 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 3-12 of copending Application No. 11/746,956. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1 and 3-12 of copending application '956 claim substantially the same method as required of claims 50, 90 and 99 of the instant application. The instant claims differ by reciting that the sample is one milliliter or less. However, if not implicit in the claims, it would have been obvious to one of ordinary skill in the art to determine the optimal volume of sample to employ while maintaining the efficiency of the detection method.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 50-54, 83, 84, 86-91 and 95-99 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 21-25 and 27-29 of copending Application No. 11/022,365. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 21-25 and 27-29 of copending Application No. 11/022,365 claim substantially the same method as required of claims 50, 90 and 99 of the instant application. The instant claims differ by reciting that the sample is one milliliter or less. However, if not implicit in the claims, it would have been obvious to one of

ordinary skill in the art to determine the optimal volume of sample to employ while maintaining the efficiency of the detection method.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

13. With respect to the rejection of Claims 50-54, 83, 84, 86-91 and 95-99 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, Applicants argue that the rejection is improper because the prior disclosure with respect to the use of the device for microorganisms would also apply to the detection of lymphocytes. Applicants stress that page 47 of the instant specification states "A microporous lymphocycte capture membrane was used in a membrane based flow sensor as previously described" (See pages 5-6 of the response filed 2/8/2010).

In response, Applicants' comments are not found to be persuasive for the following reasons. While the specification may disclose using the device for the detection of lymphocytes, the reference fails to provide specific written description with respect to the detection of lymphocytes and the use of masks as specifically recited in the claims. Furthermore, the Examiner would like to point out that instant claim 50 requires contacting the lymphocytes retained on the membrane with a visualization agent yet the specification fails to disclose this step. Page 46 of the instant specification actually discloses that the lymphocytes are contacted with a visualization agent prior to contacting the lymphocytes with the collection membrane.

Applicants comments do not address this difference between the disclosure and claimed invention.

14. With respect to the rejection of Claims 50, 54, 83, 84, 86, 90, 91 and 97-99 under 35 U.S.C. 103(a) as being unpatentable over Law et al.(US 6,709,868) in view of Straus (US 2003/0170613), Applicants argue that the rejection is improper because the reference of Law et al. does not discloses differential labeling and detection of CD4 positive cells and the reference of Straus et al. does not remedy the deficiency of Law et al. because the modification of Law et al. would render it unsatisfactory for its intended purpose (See page 7 of the response filed 2/8/2010).

15. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, it is the combination of the references that meets the instant invention. The reference of Law et al. discloses the use of a membrane device to sample blood cells and optically determine the presence of the cells on the membrane. The reference of Straus et al. suggests that lymphocytes (CD4 positive) can be detected in a sample of blood. While the reference of Straus et al. employ the use of a magnetic separation device, one of ordinary skill in the art would have readily recognized that the labeled cells could have been collected and imaged on a filter membrane in the manner disclosed by the reference of Law et al. Note the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the

claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

16. With respect to the rejection of Claims 51-53, 87-89, 95 and 96 under 35 U.S.C. 103(a) as being unpatentable over Law et al.(US 6,709,868) in view of Straus (US 2003/0170613) taken further in view of Miller et al.(US 3,827,804), Applicants argue that the rejection is improper because the reference of Miller et al. fails to cure the deficiencies of the combination of the references of Law et al. and Straus (See page 7 of the response filed 2/8/2010).

In response, the reference of Miller et al. was cited to merely address the further limitations of claims 51-53, 87-89, 95 and 96. The Examiner maintains that the combination of the references of Law et al. and Straus meet the limitation required of claim 50 for the reasons previously discussed above.

17. With respect to the obviousness-type double patenting rejections of record, Applicants stated that a terminal disclaimer will be filed when the claims have been indicated as being allowable (See page 8 of the response filed 2/8/2010).

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM H. BEISNER whose telephone number is (571)272-1269. The examiner can normally be reached on Tues. to Fri. and alt. Mon. from 6:15am to 3:45pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael A. Marcheschi, can be reached on 571-272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Beisner/
Primary Examiner
Art Unit 1797

WHB